Task Area 3: Database Development, Maintenance, and Enhancement

Sample Task Order: Update Nutrient Database for the NCI Diet History Questionnaire (DHQ)

Background

The NCI maintains dietary assessment instruments including the Diet History Questionnaire (DHQ) which is a semi-quantitative food frequency questionnaire with questions on portion size, dietary supplement use, and general dietary practice. Use of the DHQ to derive nutrient and food group intakes from responses requires a nutrient and food group composition database linked to each specific food item queried. Nutrient composition databases are updated regularly as foods in the marketplace change. The major nutrient composition database in the U.S. is maintained by USDA and is publicly available (http://www.ars.usda.gov/Services/docs.htm?docid=12089). Another major nutrient composition database, the Nutrition Data Systems for Research (NDS-R) at the University of Minnesota includes, in addition to USDA data, nutrient composition data from manufacturers and food service establishments on brand name and restaurant foods. In addition, the NDS-R database includes values derived by imputation to establish for food components for which there is little or no analytic data. Access to this database is proprietary. The objective of this task is to update the nutrient composition database underlying the DHQ using the most recent information from both of these sources.

The DHQ nutrient and food group database is derived using up-to-date data from 24-hour dietary recall data collected in the most current 4-6 years of National Health and Nutrition Examination Surveys (NHANES). Individual foods reported on recalls for those 2+ years, are placed in food groups consistent with line-items on the DHQ (for example, all types of regular fat cheese are put into a single food group). These food group data are later analyzed to create a sex-portion size-specific set of nutrient values for the DHQ that represent a mean value weighted by frequency of consumption from the 24-hour dietary recalls in NHANES.

Statement of Work

The contractor shall:

1) Revise the nutrient composition database underlying the DHQ to reflect all the nutrients, dietary components and food groups available in the USDA FNDDS databases consistent with the years of NHANES data being used and the most recent NDS-R nutrient and food group database.

2) Establish a licensing agreement with the University of Minnesota for use of NDS-R to create databases for a FFQ.

3) Work with the COR to establish an updated list of foods (line items) on the DHQ; group the foods in the USDA FNDDS food list (based on NHANES) into groups consistent with the items to appear on the DHQ; and match all the USDA FNDDS food codes to NDS-R food codes so that both nutrient composition databases can be incorporated into an existing algorithm for establishing weighted mean values for line items on the DHQ.

4) Develop a written strategic plan for incorporating new nutrient composition information into the DHQ database.

5) Develop and use quality control procedures and document such procedures.

6) Create and deliver a database of FNNDS food codes placed in food groups consistent with line items on the DHQ and a match file of FNDDS food codes to the NDS-R database that includes all NDS-R nutrient and food group values and deliver the database in Excel or cvs files.

Data

Information about the current DHQ database is found at: http://riskfactor.cancer.gov/dhq2/database/. Information about the USDA nutrient composition database is found at http://www.ars.usda.gov/Services/docs.htm?docid=12089. Information about the NDS-R nutrient composition database is found at: http://www.ncc.umn.edu/products/database.html.

Deliverables

The deliverables consist of:

1. Monthly Task Order Progress Reports describing the task activities shall be submitted to the COR and copied to the CO. The reports should include problems encountered and possible solutions.

2. A copy of the licensing agreement with University of Minnesota, submitted to the COR and copied to the CO, within 1 month from start of the task order.

3. A written strategic plan of procedures for incorporating new nutrient composition information into the DHQ database, submitted to the COR, and subject to approval from the COR, within 2 months from start of the task order.
4. A written quality control procedures plan, submitted to the COR, and subject to approval from the COR, within 2 months from start of the task order.
5. A Draft Final Task Order report submitted to the COR and subject to approval from the COR, and copied to the CO, within 7 ½ months from start of the task order. The report shall consist of:

A. An updated Excel or csv datafile consisting of food name, food ID, data for all available nutrients and MPED/FPED food groups
B. Documentation on procedures and quality control measures.

6. Final Task Order report which includes all changes recommended by COR is due.

Period of Performance

The period of performance for this task order is 8 months.